DOCUMENT RESUME

ED 350 070 PS 020 501

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TITLE The Effects of Non-Maternal Care in the First Twelve Months of Life on Children in the First Year of School: Preliminary Findings from a Two Stage Study (The Australian Early Childhood Study).
INSTITUTION Australian Inst. of Family Studies, Melbourne.
PUB DATE [90]
NOTE 26p.
PUB TYPE Reports - Research/Technical (143)

EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS *Academic Achievement; *Day Care; Early Childhood Education; *Elementary School Students; Employed Parents; Family Characteristics; Family Environment; Foreign Countries; *Learning Problems; Mothers; Primary Education; *School Readiness
IDENTIFIERS Australia (Adelaide); *Australia (Melbourne); Australia (Perth); Bowlby (John)

ABSTRACT

This paper, which presents preliminary analysis of data from stage one of the Australian Early Childhood study, examined the effects of nonmaternal care in the first year of life on children in their first year of school. The author tested the hypothesis, proposed by John Bowlby and others, that long periods of nonmaternal care in the first 12 months of life are a risk factor in the later development of psychological problems. A random sample of 8,471 mothers of first-year school children in Melbourne, Adelaide, and Perth responded to questionnaires that included questions about their socioeconomic and racial backgrounds and the type and amount of nonmaternal care provided to their children since birth. Mothers were also sent a checklist of skills and behaviors that was designed to gauge the readiness of their children for school. From these measures it was found that long hours of nonmaternal care in the first years of life were not the primary cause of social and emotional difficulties at the time of entry into school. Rather, the analysis suggests that these difficulties were related to broader family background factors and characteristics of mother and child, such as poverty, ethnicity and the mothers' satisfaction with their lives. Contains 56 references. (MDM)

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THE EFFECTS OF NON-MATERNAL CARE IN THE FIRST TWELVE MONTHS OF LIFE ON CHILDREN IN THE FIRST YEAR OF SCHOOL: preliminary findings from a two stage study (the Australian Early Childhood study).

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With grateful acknowledgement of the research assistance and advice of Peter Schmidt, Peter McDonald, Gillian Hamerston, Violet Kolar, Suzanne Clark and Vance Merrill

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THE EFFECTS OF NON-MATERNAL CARE IN THE FIRST TWELVE MONTHS OF LIFE ON CHILDREN IN THE FIRST YEAR OF SCHOOL

This paper, which presents preliminary analysis of data from Stage 1 of the Australian Early Childhood study, examines the effects of long hours of non-maternal care in the first twelve months of life on children in the first year of school. Stage 1 of the study consisted of a questionnaire completed by 8,500 mothers with children in the first year of primary school. A checklist of mother's perception of child competence was included in the questionnaire. This checklist contained indicators of the child's social and emotional development as well as a range of skills. The conceptualisation, design and aims of the study are described, and directions for analysis of the Stage 2 interview data are indicated. (Stage 2 involves a comprehensive interview of 740 mothers, selected from Stage 1 on the basis of the different contexts of caring for children in the pre-school years, and tests of their children on a range of child outcome measures.)

Maternal workforce participation in Australia

One of the most marked changes affecting Australian children in the pre-school years is the move of mothers of young children into the paid workforce. In the past, most Australian children under the age of five years were cared for at home by their own mothers; due to social and economic changes in society, increasing numbers of young children are now being placed in the care of other people while their mothers work outside the home. In 1954, only 13 per cent of married women were in the paid workforce; by 1966 it was 29 per cent; by 1981 it was 43 per cent, although many of these women were working part-time only (Prosser 1981). More recently, June 1989, the labour force participation rate for mothers with children in the 0--4 age group reached 44 per cent, of which 27.3 per cent were working part-time, 13.5 per cent full-time and 3.2 per cent were unemployed. However as children get older, maternal labour force participation rates increase and in 1989 stood at 67.9 per cent for mothers of children in the 5--14 age group, with 29.4 per cent of mothers working full-time, 34.7 per cent part-time and 3.8 per cent unemployed (ABS 1989). Mothers are working outside the home for many reasons, but financial need is a pressing incentive to many as the costs of bringing up children and the prices of homes rise, and interest rates and rents escalate.

Cultural and Demographic Changes

Where once Australia was noted for the homogeneity of its population, today it is noted for the mixture of many races and cultures. As a result of our immigration program, many children in Australia are growing up in families where English is the second language. One in every seven Australians aged five years and over speaks a language other than English at home (ABS 1986). Whereas in 1947, 9.8 per cent of the population were born overseas, by the time of the 1986 Census just on 21 per cent were

born outside of Australia, and another 25 per cent of the Australian-born population had parents who were born outside of Australia. Earlier migrants were largely of British origin, while recently the proportion of those born in other countries has increased (Department of Immigration 1988).

Today migrants are encouraged to retain their own cultural identity, and government policy encourages multi-culturalism, unlike the earlier policy of assimilation where migrants were expected to discard their own language and cultural heritage and to adopt Australian ways. This multi-cultural policy means that agencies and institutions dealing with migrants must acknowledge their special needs; in particular, educational institutions and child care agencies must cater for children from non-English-speaking households.

Another important change that affects the lives of many young children is the increase in divorce and separation of parents. Although the divorce rate has declined since 1983, one in three marriages are predicted to end in divorce, and it is estimated that about 3.9 per cent of children have experienced the divorce of their parents by the time they are five years old (Carmichael and McDonald, 1987). These children and others whose parents have separated are mostly in the care of their mothers, often living on government benefits or equally low earned incomes.

Throughout the 1980s there has been increasing awareness and exposure of the extent of child poverty in Australia. In the period between 1972--73 and 1985--86, the number of children in poverty rose from 6 per cent to 21 per cent of all children (Brownlee and King 1989). The percentage of single-parent families in poverty (55 per cent) is highest of all. However, it is not just single-parent families who are affected. Between 1981--82 and 1985--86 there was a 31 per cent increase in married couples with children living below the poverty line (Maas 1987). In 1987, 20 per cent of Australia's children were in the Social Security system with parents who were either on Unemployment, Supporting Parent or Sickness benefits. Growing up in poverty affects the life opportunities of children, their health, educational achievement, and their housing (Edgar, Keane and McDonald, 1989).

To sum up, the current context for the upbringing of young children in present-day Australia is very different from in previous decades; mothers are more likely to be working before the child goes to school, there are more single parents rearing children alone, there is increased poverty, many children are growing up in different cultural contexts from the dominant Anglo-Celtic culture, and more children are growing up with English as a second language or with exposure to languages other than English.

The effects of non-maternal care on young children

Early childhood is generally recognised as a very important stage of child development; it is the period of the greatest physical, intellectual, social and emotional growth. In early childhood children acquire language and the foundations are laid for

literacy. From birth children are learning all the time, and whether in the care of the mother or others, they are involved in the process of growth and learning. The change in the context of early childhood development which receives the most attention is the increase in the number of mothers in employment in the pre-school years. There continues to be considerable debate about the effects of non-maternal care on children in the pre-school years. Current concern in Australia is with the effects of long hours of non-maternal care on infants, particularly those under 12 months of age. This concern is partly related to the increasing number of mothers who are returning to work while their children are very young, partly to difficulty in finding satisfactory child-care, particularly for very young children, but also to publicity given to research by Belsky et al (1988), in the United States, which indicates a greater degree of insecure attachment in infants who had been in long hours of non-maternal care.

Much of the fear about the possible negative effects of non-maternal care on pre-school children stems from interpretations of John Bowlby's research in the 1950s which emphasised the importance of mother-infant bonding and attachment, and the detrimental effects of separation from mother. Bowlby's work was actually concerned with the effects of maternal deprivation on infants and young children brought up in hospitals and institutions and who had suffered severe deprivation; however findings have been generalised to children living with their own mothers and fathers. Bowlby claimed that young children could suffer psychological damage if separated from mother or mother substitute in the first five years of life; he also claimed that this is one of the principal causes of delinquency. However, this claim has not been borne out by research in the thirty or forty years since; separation from mother has not been found to have long term effects on children in families, rather delinquency and behaviour problems have been linked with ongoing conflict in the family (Rutter, 1976; Rutter, 1981, 1984, 1989; Tizard, 1986).

Although Bowlby claimed it was not harmful for mothers to leave their babies and young children occasionally with their own mother or a known dependable adult, he also stated that '...to start nursery school much before the third birthday is for most children an undesirably stressful experience' (Bowlby, 1973, 54). It became generally accepted that children were at risk if mothers went out to work before they were 3 or even 5, and that work should be part time only. Oakley (1981, 217) argues that: 'The reason why Bowlbyism caught on was that his message fitted the spirit of the times: the 1950s were a reactionary time for women...'.

Bowlby also argued that there is a tendency for children to attach to one figure and that attachment to mother is qualitatively different from other attachments. However this argument has also been challenged by research which indicated that some children are more attached to father, although he may not be the primary caregiver, and some are attached to several people; attachment is not dependent on the amount of time spent with the child but rather the quality of the relationship

(Rutter, 1981; Tizard, 1986). Studies indicated that father's role was both more important and more direct than previously realised (Lamb, 1976, 1977; Clarke-Stewart, 1980; Pederson, 1980; Chibucos and Kail, 1981; Parke, 1981).

A survey of non-industrialised countries in the late 1970s found that child rearing is usually shared with other members of the extended family and it is rare for mothers to be exclusively responsible for children (Weisner and Gallimond, 1977, cited in McCartney and Galanopoulos, 1988). For example, the care of young Maori children is seen as the pleasure and the responsibility of the family group. In Pacific Island cultures there is no word for mother; mothers and aunts share the same name and responsibilities (Meade, 1988). In these societies mother care is not seen as something unique.

During the 1960s researchers were concerned with the quality of mother-child attachment and whether child care in centres was bad for children. They found that children in child care were just as attached to mother as children cared for only by mother; although there was no difference in intellectual development children in child-care centres were found to be a little more aggressive and independent (McCartney and Galanapoulos, 1988). Nevertheless, this research was criticised because the children studied were cared for in high quality centres, often on university campuses, whereas many children are cared for in centres with lower standards. This led Jay Belsky, who in a review of the literature in 1978 came to the conclusion that children were not harmed by child care (Belsky and Steinberg), to look once more at the effects of non-maternal care. Belsky has recently reversed his stance and in an extensive review of the research (1989) argues that there is substantial evidence of a link between early placement in day care and later attachment and social development problems in children.

While Bowlby argued that attachment to mother was essentially different from attachment to any other person, Belsky, in line with more recent research on the importance of the father, considered attachment to father an important factor also, and in this sense is not as rigid in his definition of attachment as were the earlier attachment theorists. Belsky's research (Belsky and Rovine, 1988), found higher rates of insecure attachment in babies (under 12 months) who had been in long hours of non-maternal care or non-parental care. Belsky also reports several other studies with similar findings. Belsky's research and other research on infant attachment rests largely on the credibility of the Strange Situation Technique which was developed by Mary Ainsworth to observe attachment behavior in mothers and infants.

Ainsworth believed that mothers' sensitivity to the signal of their infants was a key factor in attachment, and that attachment in infancy was a good predictor of later emotional and social behavior (Rutter, 1981; Tizard, 1986). The Strange Situation observation technique, a series of eight episodes of combinations of mother, baby and stranger in a room, has been criticised on several grounds, including validity. It is an artificial situation in which mother and child are observed, and does not take into account many other factors influencing the child's

behaviour, including child temperament and family factors. Babies do differ in their ways and experience. Babies who have been in child-care may appear detached not because they are insecure but because they are more independent, more accustomed to the care and presence of strangers and used to coming and going (Scarr and Dunn, 1987; McCartney and Galanopoulos, 1988).

Clarke-Stewart (1988) questions the assumption that the Strange situation technique when used with children accustomed to non-maternal care is psychologically equivalent to its use with home reared children. She points out that the Strange Situation technique '... is premised on creating a situation in which the infant feels moderately stressed and therefore displays proximity seeking behavior to the object of his or her attachment'. The Strange Situation, therefore, may not be as stressful for infants accustomed to non-maternal care as for home reared infants, as familiarity may affect their responses. Clarke-Stewart (1988) also points out that there are cultural variations in response to the Strange Situation technique with some cultures having a high proportion of infants classified as insecurely attached; the artificially created situation is obviously not stressful to infants from all cultures.

Research has also indicated that babies with several attachments are less distressed if mother works outside the home than those with only one attachment (Scarr and Dunn, 1987). Studies have also shown that babies in child care protest just as much at separation from mother as those at home with mother; both groups showed a preference for mothers rather than care-givers. No studies of day-care children have shown them to be more emotionally or socially maladjusted (Tizard, 1986), although Belsky is doubtful about this claim (Belsky, 1988).

The most valuable aspect of Belsky's recent review of the effects of infant day care is the discussion of the broader issues involved in non-maternal care of children with reference to previous research. He looks further than mere attachment theory and quality-of-care arguments, and discusses the broader ecological circumstances of the family. Although Belsky is concerned about increased rates of insecure attachment in children in long hours of care in the first 12 months, he also points out that there were some children in long hours of care who did not show insecure attachment, and that it is therefore important to look for factors in the family environment or in children themselves which are protective (Belsky and Rovine, 1988; Belsky, 1988).

Nevertheless, Belsky's claim that insecure attachment at the end of the first year is a risk factor which is associated with later aggression and noncompliance is questionable (Fein and Fox 1988; Clarke-Stewart, 1988). Aggression and non-compliance may also be interpreted as assertiveness and independence. As Clarke-Stewart (1988) argues 'day care children may be more "bratty" than home

care children; they may want their own way and do not have the skills to get it. This does not mean they are maladjusted. More clinically sensitive measures of maladjustment are needed to prove that case'.

Fein and Fox (1988, 230) point out that some attachment theorists are rethinking the meaning of attachment in the first year of life and '... now argue for naturally occurring transformations in the quality of attachment during the second and third years of life. Secure and insecure attachment measured at the end of the first year is not viewed as a critical factor in subsequent personality formation, but rather as one component in a probabilistic model, along with continuity and stability of home environment, life stress events, and the like'.

Family factors affecting children

King and MacKinnon (1988), who reviewed research over the 1980s on the relationship between day care and child development, assert that the important question in regard to non-maternal care of children is how qualities of the home interact with qualities of the day care environment to affect child outcomes. Both Bronfenbrenner (1986) and Belsky (1988) suggest that researchers should take an ecological approach, which includes family factors, to the effects of non-maternal care on child development.

Although research taking into account both family and day care factors has so far been limited methodologically, both in scope and sample size, a number of family factors have been suggested as mediating the effects of day care on infants and also influencing the choice of non-maternal care (Hoffman, 1983; Belsky, 1988; Clarke-Stewart, 1988; King and MacKinnon, 1988; McCartney and Galanopoulos, 1988; Richters and Zahn-Waxler, 1988). Richters and Zahn-Waxler (1988) suggest that family factors may not merely mediate or buffer the effects of non-maternal care, but may account for child outcomes independently. Family characteristics such as SES, and family structure (single or two-parent) are likely to have both direct and indirect effects on child outcomes, and also to influence the choice of non-parental care (Belsky, 1988; Schachere, 1990; King and Mackinnon, 1988).

Children from birth are part of a family system which influences the developing child as a whole, and also through dyadic relationships with individual members of the family (Minuchin, 1977). 'Both parents influence their children's development and which parent is more important varies with the child's age, sex, temperament and environmental circumstances. Furthermore, it is not always meaningful to regard the influence of each parent as separate and independent. The mental health of one parent may influence that of the other and may also influence the marital relationship. The family consists of individuals and pairs of individuals, but it is also a social group of its own and needs to be considered as such' (Rutter, 1981). Nevertheless, there are indications that child-specific relationships may be more important than overall family relationships (Rutter, 1989)

Characteristics of the mother, such as her emotional state (King and MacKinnon, 1988; Schachere, 1990; Lancaster, Prior and Adler, 1986), quantity and quality of the mother-child relationship (Hoffman, 1983; Clarke-Stewart, 1988; McCartney and Galanopoulos, 1988; Schachere, 1990), the father-child relationship (Hoffman, 1983; Belsky, 1988; Schachere, 1990), parenting skills (King and MacKinnon, 1988; Belsky, 1988; Richters and Zahn-Waxler, 1988), family processes such as conflict and stress (Rutter, 1976, 1981; Belsky, 1988; Fine and Fox, 1988), the marital relationship (Belsky, 1988; Richters and Zahn-Waxler, 1988; Schachere, 1990), and job stress (Belsky, 1988; Clarke-Stewart, 1988) may affect child outcomes. With older children the negative effects of family conflict on adjustment and self esteem have been well documented (Nye, 1957; Raschke and Raschke, 1979; Ellison, 1983; Ochiltree and Amato, 1984).

Schachere (1990) suggests that the marital relationship affects how both husband and wife function as parents and that a good relationship may act as a parent support system. Clarke-Stewart (1988) points out that employment in the workforce is hard on mothers and that this stress may affect their relationships within the family, including those with their children. Belsky (1988) cites research by Pederson and colleagues (1983) which found that employed mothers of infants attempt to compensate for being absent by spending more time with them and may displace father's time. He infers from findings in studies which found that mothers of anxious-resistent infants stimulated them and/or were more affectionate than mothers of secure infants, that this behavior may inadvertantly lead boys to have less secure relationships with their fathers. However, there is no direct evidence for his claim (Clarke-Stewart, 1988) .

Child Characteristics

There is both theoretical and empirical evidence that children are active participants in the socialisation process. The theories of the cognitive psychologists, Jean Piaget, Noam Chomsky and others, are based on the premise that children have a built in tendency to explore and master the environment, and to learn the unstated rules of the world about them (Ginsberg and Opper, 1979; Wine, 1981; Skolnick, 1981). Research over the last couple of decades has indicated that babies, although limited in their physical development, actively attempt to master their environments very early in life (Rheingold, 1971; Schaffer and Crook, 1978; Bell, 1979). The environment in this sense is both physical and human, with the infant attempting to predict and control both (Donaldson, 1978). Research has also indicated that alert, responsive babies get more attention from mothers than less responsive babies, that difficult new babies are more easily stressed than others, and that mothers talk less to irritable babies (Tizard, 1986). Children take an active role in relationships not just within the family but in all settings. For example Zinsser, (1988) found family daycare minders liked to care for children who were "good" and not demanding.

While there is some evidence that boys are more affected by non-maternal care than girls (Hoffman, 1983; Belsky, 1988; Schachere, 1990), Clarke-Stewart (1988) points out that the evidence is not

strong. Child temperament is also likely to affect child outcomes (Tizard, 1986; Clarke-Stewart, 1988; Richters and Zahn-Waxler, 1988). For example, Belsky (1988) found that insecurely attached infants of working mothers had more difficult temperaments. Clarke-Stewart (1988) suggests that mothers perceptions of infant temperament are more important than objective tests. Siblings, particularly older siblings, may also have an influence on children's development and response to non-maternal care (Tizard, 1986).

The long term effects of early experience

There is a strong belief among parents and the public in general, arising from the influence of Freud and Piaget, that events which occur in infancy and early childhood have a significant influence on later happiness as an adult (Kagan, 1984). This belief makes mothers in particular, and parents in general, worry when they hear that infants in non-maternal care in the first twelve months of life are at risk of insecure attachment and possibly later psychological problems. However, as Rutter (1989), in a comprehensive examination of the issues and related research argues, this belief has been challenged by findings from research over the last three decades. 'It became clear that people changed a good deal over the course of development and that the outcome following early adversities was quite diverse, with long-term effects heavily dependent on the nature of subsequent life experiences (Clarke and Clarke, 1976). Even markedly adverse experiences in infancy carry few risks for later development if the subsequent rearing environment is a good one (Rutter, 1981)'.

Fien and Fox (1988, 233) in the introduction to the Early childhood research quarterly. Special issue: infant day care, sum up the issues: '... it seems clear that current studies, even those set within attachment theory, have too many methodological problems and constraints to serve as the basis for alarm or negative conclusions about the consequences of early non-parental care. In the near future, the aim of systematic research will be to devise measures of important attributes of parents, children, caregivers, and settings; to devise procedures for identifying research populations; and to devise strategies for building needed control conditions into our group comparisons'.

In addition to the methodological problems mentioned above, most research on non-maternal (and non-parental) care and its effects has been carried out in the United States, a country which is different in many ways from Australia. In the light of changing patterns of child rearing, renewed interest in the effects of child-care on children, and particularly on infants, Australian research is necessary to provide a basis for informed policy and planning, and to assist mothers making decisions about the care of pre-school children.

The Australian Early Childhood study

The Australian Early Childhood study was designed to examine the relationship between a broad range of family factors, child

characteristics, and different patterns of caring for children, including non-maternal care, in the years between birth and starting school (at approximately 5 years of age), and a range of child outcomes in the first year of school. This paper examines the effects of non-maternal care in the first twelve months of life on child outcomes, using data from Stage 1 of the study.

Hoffman (1983) criticised research examining the effects of maternal employment on young children for small and biased samples, and indicated the need for longitudinal or retrospective studies with less biased samples. In order to obtain a representative sample of mothers of young children in the Australian Early childhood study, the sample was selected from children in their first year of school; a retrospective approach was thus taken to care of children in the pre-school years. Besides obtaining a random sample, this method had the advantage of providing urgently needed information much faster than by beginning with a birth cohort of children. Nevertheless, it is planned to make this a longitudinal study and to return to the children in the Stage 2 sample at a later date (perhaps when the children are 9 or 10 years of age).

The study design involved two complementary stages. Stage 1 consisted of a questionnaire which obtained basic information on the care of the children over the first five years of life. Basic demographic information such as income, education of the parents, occupation, mother's work history, and also a checklist of child skills and behaviour on school entry was included. In order to select groups of special interest at Stage 2 it was necessary to obtain a large sample at Stage 1. (Analysis reported here is from this first stage of the study).

The sample for Stage 2 was based on the different patterns of care used over the pre-school years. The large Stage 1 sample (8471) enabled the precise selection of this sample. The second stage of the study involved a comprehensive face-to-face interview (740) including both open and closed questions which covered family life, the child's history, how mother managed child-care, work, the father's role and so on, in considerable depth. The child was also tested using a number of measures. Stage 2 data are not used in this paper but will provide the opportunity for more comprehensive and sensitive examination of the issues discussed at a later date.

Theoretically the Early Childhood study is based on an understanding of the development of competence in children. The concept of competence stresses the positive aspects of development rather than deficits, and encompasses a wide range of human functioning both social-emotional and cognitive and educational (Smith, 1969; Connolly and Bruner, 1974; Edgar, 1980; Wine, 1981; Amato, 1987; Ochiltree, 1990).

Family factors and child characteristics which are included in the design of the study can be seen in Table 1. Many were suggested in the earlier discussion of research in this area, but others, such as mother and child health and the life events scale, are included as possible stressors in the family system. Mother's perception of the quality of the neighbourhood and the

services provided are also included, as they may have an impact on child outcomes through effects on the family (Rutter, 1981).

Table 2 shows the various child care contexts included in the design. Analysis need not be limited to simple comparisons of one form of care with another; comparisons can be made of multiple forms of care with simple contexts of care, continuity of care with discontinuity, and mother's satisfaction with the care situation can be taken into account also. Table 3 shows the measures of child outcomes (competence) used in the study; included are indicators of the social-emotional and the cognitive-educational status of children. However, as indicated earlier, analysis in this paper is limited to data collected in Stage 1 of the study.

Method

The sample: Children of around five years of age, in their first year of school, were chosen as the target group. These children could be readily located through the school system and provided a wide range of care contexts in the years before they commenced school. Oversampling at Stage 1 allowed for a reasonable choice of sample from groups of particular interest at Stage 2. A sample of mothers was obtained through Melbourne, Adelaide and Perth primary schools (including Catholic, Independent and State) which agreed to take part in the study.

The questionnaire was sent out through the schools with a booklet in the major community languages explaining the purpose of the study and including a telephone number for queries or requests for assistance with language. The overall response rate was 47 per cent (50 per cent in Adelaide, 42 per cent in Melbourne and 49 per cent in Perth). Mothers were asked if they were prepared to be interviewed at stage two of the study; just on 49 per cent (48.7) agreed to further contact.

The Stage 1 sample covered the socio-economic spectrum although the lowest income bracket was under-represented in comparison with the population. Compared with the population, there were no significant differences in the proportions of the sample born in Australia or born overseas, although there was an over-representation of some ethnic groups and under-representation of others. The sample also represented the population in its proportions of married, single-parent and remarried families. The proportion of employed mothers was over-represented in the sample, which was useful as it provided a good basis for selection of the sample for Stage 2. Altogether, a sample of 8471 mothers was obtained for Stage 1 of the study (Melbourne 5597, Adelaide 1383 and Perth 1466, 25 state unknown) as can be seen in Figure 1. At Stage 2, of the 49 per cent of mothers who indicated willingness to be interviewed, 740 were selected, on the basis of different forms of caring for their children, to take part.

All mothers were asked to fill in a grid of child care use which was included in the mailed-out questionnaire and indicated all forms of child-care used in the daytime for each year of their

child's life; the grid included maternal and paternal care. A particular form of care may have been used just once or many times, and mothers were able to indicate if more than one form of care was used in any year. Careful checking of responses on this grid with later interview responses to more detailed questioning revealed some discrepancies, but the patterns of child care use reported are consistent and, on the whole, accurate. Another question asked mothers the number of hours on a weekly average their child was in the care of others for each year of the child's life. Generally, the use of formal care (i.e. child care centre, creche, family daycare home, work-based child care) increased with the age of the child, from 5 per cent of cases when infants were under 12 months of age to 21 per cent between three and four years of age. The greatest increase in the use of formal care was between the time infants were under 12 months and before they turned two; the use of formal care more than doubled to 12.7 per cent in the children's second year of life.

Informal care (care by relatives, babysitters, nannies, siblings, friends and neighbours) was generally used more than formal care, probably because of availability, the range of possible carers and also because some parents used it in addition to formal care. For example, of those using child care away from mother before their infants were 12 months of age, 25.6 per cent of mothers used informal care compared with 5 per cent who used formal care. By the time children were between three and four years of age 42.7 per cent of mothers used informal care for their children while only 20.7 per cent used formal care. Some of the use of informal care may well have been for short periods of occasional care, and some mothers were obviously using both forms of care. (All figures reported above are for multiple responses to the question asked about what forms of care had been used in the first five years).

It is important to note that although children were in the care of others during the day while their mothers were in paid employment, they also received daytime care from their mothers, and sometimes from their fathers, particularly if their mother worked part-time or did shift work which interlocked with father's work. In some circumstances parents provided a considerable amount of the care. Infants whose mothers worked less than 20 hours a week, and who were cared for by others for short hours (less than twenty hours a week), were also cared for by their parents in 60.3 per cent of cases. The group of employed mothers who reported least care by parents in the daytime were those who worked more than 20 hours per week and whose children were cared for by others for long hours. Nevertheless, 29.2 per cent of these cases also reported some daytime care by parents.

The effects on children

In the light of current concern with the effects of early non-maternal care on infants, the first analysis of Stage 1 data from this study has focused particularly on children who were in non-maternal care in the first year of life (and who were in the first year of school at the time of data collection). Any

analysis from this stage of the study can only be preliminary because of the limited nature of the data and the lack of full information on the family. However, further information is available in the Stage 2 interview data and will be followed up as the next step in the study.

In particular this analysis will examine the Stage 1 data for any evidence which would support Belsky's argument, based on attachment theory, that long hours of non-maternal care of children in the first year of life is a risk factor in the later development of psychological problems. This analysis will therefore examine the relationship between the hours children were in non-maternal care in the first year of life and socio-emotional or behaviour problems in their first year of school.

The Measure

In order to obtain some information on the general competence of children whose mothers were included in Stage 1 of the study (N=8,471) a checklist was included in the questionnaire. This checklist, which was adapted from the ACER Parent Checklist (with permission from ACER), consists of a number of skills and behaviours which children are expected to have developed by the time they go to school in Australia. The checklist was originally designed to be filled in by parents (usuallu mother) and given to the teacher when their child commenced school so that the teacher would have some idea of the child's skill level or competence. Mother's perceptions of children's behavior and development is the most viable way of obtaining information in a questionnaire, but mothers also have the most opportunity to observe their children over a long period of time. Ojective observations by others are usually for short time periods only and therefore are less accurate (Carey, 1982).

The ACER checklist was somewhat out of date and sexist; the wording was changed to make it non-sexist, it was up-dated and additional items about language and emotional development were added. The checklist was trialled in three pilots of the questionnaire before the main study commenced. It was expected that the scale would be positively skewed because the items were ones which most children should have achieved before commencing school. However, the more important issue was to find which children had not achieved this desired level of competence, as perceived by their mothers.

The full checklist as set out in the questionnaire was in a simple 'tick the box if the item applies to your child' format. Some items were reversed to prevent set expectations. The checklist included items such as 'Knows full name', 'Talks in sentences', 'Dresses himself/herself most of the time', 'Can use scissors' and other items which are more concerned with social and emotional behaviour such as 'Seems to worry a great deal', 'Likes to play with other children', and so on.

Scores on the checklist were positively skewed, as expected, and most of the children were able to achieve success with many items; however the important issue for this study was to find

which children had difficulties with some items. The items from this scale which discriminated (i.e. frequency was less than 90 per cent), 14 items in all, were selected for further analysis. These 14 items were subjected to principal components factor analysis from which one main factor emerged (Alpha Coefficient .68); it includes 7 items relating to socio-emotional behaviour patterns in children. This 'Social-Emotional Difficulty' factor consisted of the following items 'Seems to worry a great deal', 'Cries very easily when upset', 'Often has temper tantrums when upset or corrected', 'Is very restless or active, never stays still for a moment', 'Inattentive, doesn't notice what is happening', 'Is aggressive with other children', and 'Appears miserable, unhappy, tearful or distressed'. Most items on this scale are generally regarded as undesirable if frequent in children and in combination. Children could score from 0 to 7 on this scale.

Analysis

This Social-Emotional Difficulty scale (derived from the ACER checklist) is the primary focus in this assessment of Belsky's theory that long hours of non-maternal care in the first twelve months of life is a risk factor in the development of later problems of aggression, non-compliance, or psychological problems. Although the Stage 1 of the study was not explicitly designed to appraise Belsky's findings, the study's large sample base permits, at the very least, a preliminary examination of the of the longer term effects of non-maternal care in the context of a broader non-'Strange-Situation' assessment.

The multivariate OLS approach undertaken here involved regressing the Social-Emotional Difficulty scale on a variety of factors available in Stage 1 of the study and thought to be plausibly associated with the child's socio-emotional and behavioural well-being, as indicated in the earlier discussion.

These measures included indicators of:

- the child's child care arrangements at the early infancy stage (i.e. whether the child had been placed in informal or formal care and the average number of hours per week the child was cared for by a non-parent in the first twelve months);

- the characteristics of the child (i.e. its gender, its sibling order and whether it had a disability);

- the child's family situation (i.e. whether it had two parents, average hours mother was in paid employment in the child's first year of life, and how satisfied the child's mother was with life);

- three important measures of the social background of the child (i.e. the degree of parental ethnicity, parental education and family income).

What is of interest in appraising the Belsky approach is the extent to which the child care arrangements are seen to have a significant and independent effect on the child's subsequent

proneness to Social-Emotional Difficulties - after controlling for the presumed influence (whether realised directly or indirectly) of the various social background, family situation and child characteristic factors.

It should be noted that the initial correlations between the Social-emotional Difficulty scale and the three child care arrangement variables do not provide bivariate support for the Belsky maternal attachment hypothesis. The negligible relationships between informal (r= -.03) and formal (r= .02) child care and Social-Emotional Difficulty respectively, and that between duration of non-maternal child-care and Social-Emotional Difficulty (r= .01) are of such low magnitude, and/or in the opposite direction to Belsky's hypothesis, that one might reasonably suppose further, more stringent, multivariate analysis was unwarranted.

Nevertheless, the possibility that the effect of child-care arrangement on subsequent Social-Emotional Difficulty has been masked (or suppressed) by the confounding influence of the social background, family situation and child characteristic variables, some of which do exhibit non-negligible zero-order relationships with the Social-Emotional Difficulty measure, suggests that a further stage of multivariate assessment is justified.

As Table 4 demonstrates, however, controlling for the various social background, family situational and child-specific factors does not reveal evidence of any suppressor effect(s) in action; rather, child care arrangements are seen, again, to have no statistically significant influence on level of Social-Emotional Difficulty - and given an N of over 8000, such significance is not difficult to achieve.

Instead, the most important, albeit weak, direct ('positive') influence on the child's level of Social-Emotional Difficulty is seen to be his/her parents' degree of ethnicity; for example, net of other factors, children of parents born in non-English speaking countries and speaking a language other than English in the home are likely, on average, to score half a point higher on the Social-Emotional Difficulty scale than children coming from Australian born families. On the other hand, social background factors such as family income and education exhibit 'negative' direct influences on the Social-Emotional Difficulty scale - that is, children from the better educated and higher income families show lower Social-Emotional Difficulty scores than do their less privileged peers.

Of the family situation factors, by far the most important (and in fact the most important of the independent influences discussed here - importance being gauged by the relative magnitudes of the unstandardised regression coefficient x mean products) is the life satisfaction of the child's mother. Other things being equal, in families with 'satisfied' mothers, children are seen to have almost one (out of seven) fewer symptoms of Social-Emotional Difficulty than the children of mothers who are 'not satisfied' with their life.

In addition, being a boy, an eldest sibling and/or a disabled child are attributes of children exhibiting very slightly, but significantly, greater levels of Social-Emotional Difficulty, once other factors have been taken into account.

It should be emphasised, however, that none of the above factors constitutes, on the basis of the data examined here, a mono-causal explanation of childhood social-emotional problems; nor together do they 'explain' a compelling proportion of the variation in levels of Social-Emotional Difficulty. What these data and their measures do provide even in the preliminary manner presented here, are reasons to suspect that attachment theory may well be downplaying the role social background, family situational and child-specific factors have in the child's socio-emotional and behavioural development, especially when assessed in the wider, more realistic context of the survey setting.

Discussion

Analysis reported in this paper is not conclusive. However, it does suggest that long hours of non-maternal care in the first years of life and mothers working are not the primary cause of socio-emotional difficulties on school entry. Rather, this analysis suggests that socio-emotional difficulties as measured by the Social-Emotional Difficulty scale, are related to broader family background factors and characteristics of mother and child. However, it is important to note that this preliminary finding is not entirely at odds with those reported by Belsky when he asserts: 'Nor has it been my goal to argue that nonmaternal care per se poses risks to the child. It is clear that many factors and processes are confounded, that not all children realize the risks, and that some account of variation in development of infants with extensive nonmaternal care is called for. All too often, however, those accounts that have been offered fall short from an empirical standpoint' (Belsky, 1988, 265).

As pointed out in the introduction, there are many changes in Australian society which are affecting the way in which children are reared in early childhood. The increasing number of mothers returning to the labourforce is only one of these changes; however, it is the one which is the focus of much concern and controversy. More young children would suffer the effects of poverty if their mothers did not work, and there is much research to demonstrate that poverty has a negative and limiting effect on child development.

The Stage 2 data from interviews of 740 mothers (selected from Stage 1 on the basis of the differing forms of caring for children) provides the opportunity to include more sensitive measures of family functioning, as well as maternal and child characteristics, and to examine child outcomes for both direct and indirect effects. There is also a more comprehensive range of measures of child outcomes included in Stage 2: Clay's concepts of print (reading), Larson's copying test (a Piagetian non-language based test), the ACER Teacher Checklist (which includes teacher's perceptions of the child's memory and

attention, language skills, social and emotional development), in addition to the ACER Parent checklist filled in by mothers at Stage 1. Information on the child's personality as an infant and at the present time is also available as well as information on how the child is adjusting to the school situation. Stage 2 also includes open ended material which is available in both coded form or as quotes. This open ended material provides the opportunity for excellent case studies to both illustrate and explore the interaction of the various factors which may affect child development in greater depth.

Conclusions

On the basis of research to date, to frighten mothers who are working about the possible negative effects on children of non-maternal care, is premature. The debate about the effects of non-maternal care also diverts attention from those children whose difficulties stem from identifiable problems such as poverty, the need for assistance with English language problems and/or in adjusting to Australian society, or from relationship difficulties within the family. In some circumstances non-maternal child care may provide a more stable and supportive environment than the home. While the arguments about the effects of non-maternal care continue, mothers who have no choice but to work continue to have difficulty in finding child care places for their children; the majority, whether through choice or not, must rely on informal care, particularly for infants. Information from Stage 2 of this study will provide much needed information for informed policy and decision making in Australia.

TABLE 1

FAMILY CONTEXT

(* included in Stage 1)

SOCIAL BACKGROUND
INCOME *
EDUCATION LEVEL OF BOTH PARENTS *
OCCUPATION OF BOTH PARENTS *
FAMILY STRUCTURE (2 parents, 1 parent, remarried) *
ETHNICITY *

FAMILY PROCESSES
MOTHER-CHILD RELATIONSHIP
FATHER-CHILD RELATIONSHIP (as perceived by mother)
DIVISION OF LABOUR IN THE FAMILY
MARITAL CONFLICT

PARENTING
MOTHER'S VALUES
ASPIRATIONS FOR THE CHILD
PRESS FOR EDUCATION
PARENTING STYLE

MOTHER
MOTHER'S HEALTH NOW AND AFTER BIRTH OF CHILD
MOTHER'S WELLBEING
LIFE SATISFACTION *
LIFE EVENTS SCALE
EMPLOYMENT HISTORY SINCE BIRTH OF CHILD

NEIGHBOURHOOD
HOUSING QUALITY
NEIGHBOURHOOD QUALITY
PERCEPTION OF SERVICES
MOBILITY

CHILD CHARACTERISTICS
SEX *
POSITION IN BIRTH ORDER *
DISABILITY *
HEALTH
PERSONALITY NOW AND AS AN INFANT (mother's perception)
CURRENT SITUATION AT SCHOOL

TABLE 3

CHILD OUTCOMES
(Competence)

(* included in Stage 1)

1. ACER PARENT CHECKLIST

   GENERAL BEHAVIOUR, SKILLS, AND LANGUAGE *
   Emotional adjustment, Timidity

2. ACER TEACHER CHECKLIST

   GENERAL BEHAVIOUR, SKILLS, LANGUAGE, BASIC NUMERACY
   (Cognitive, social-emotional, motor-skills)
   Communication, Independence/Autonomy, Sociability, Language development

3. CLAY'S CONCEPTS OF PRINT (Sand Test)

   KNOWLEDGE UNDERPINNING READING

4. LARSON'S COPYING TEST

   (not based on language)
   Copy 1, 2, 3 Total
   (shapes) Sentence

5. School adjustment

   Mothers perception

BEST COPY AVAILABLE

TABLE 4

OLS REGRESSION OF SOCIAL-EMOTIONAL DIFFICULTY ON FAMILY SOCIAL BACKGROUND AND SITUATION, CHILD CHARACTERISTIC AND CHILD CARE ARRANGEMENT VARIABLE

VARIABLE	b	B
SOCIAL BACKGROUND		
ETHNICITY	.47	.20
EDUCATION		
- DEGREE	-.21	-.05
- < 11 YEARS	.27	.08
FAMILY INCOME ($100)	-.04	-.09
FAMILY SITUATION		
TWO PARENTS	NS	NS
NO. HOURS WORKED	NS	NS
SATISFACTION WITH LIFE	-.71	-.13
CHILD'S CHARACTERISTICS		
MALE	.13	.04
ELDEST	.23	.07
DISABILITY	.32	.05
CHILD CARE ARRANGEMENTS		
INFORMAL	NS	NS
FORMAL	NS	NS
HOURS CARED FOR BY OTHERS	NS	NS
INTERCEPT	2.14	
ADJ R .10 P<.0000		

EXCEPT WHERE NOTED, ALL VARIABLES SIGNIFICANT AT P<.000

Figure 1

SAMPLES FOR STAGES 1 AND 2

AUSTRALIAN EARLY CHILDHOOD STUDY

STAGE ONE : MAILED QUESTIONNAIRE TO MOTHERS OF CHILDREN IN THE FIRST YEAR OF SCHOOL

MELBOURNE	ADELAIDE	PERTH	Total
5597	1383	1488	8471

+ Modified ACER Parent Checklist

STAGE TWO : MOTHER INTERVIEWS + CHILD TESTING

MELBOURNE	ADELAIDE	PERTH	Total
461	180	100	741

- Modified ACER Teacher Checklist
- Larsen Copying Skills Test
- Clay Concepts about Print Test

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